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Arboretum
Bulletin

Winter 1999



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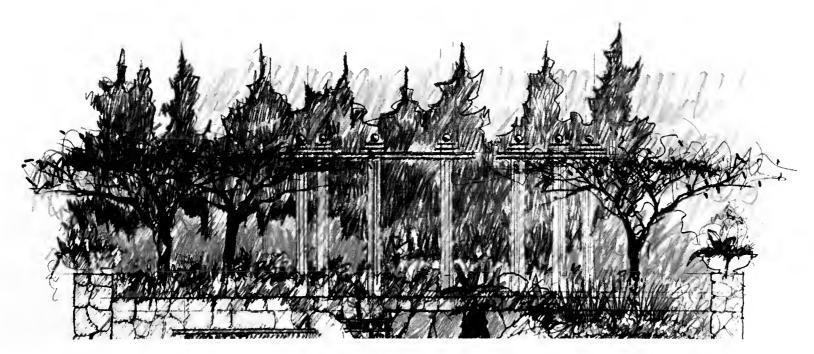
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Cover:

Scene in the Winter Garden



Photo by Joy Spurr

asses Helleborus orientalis are an enduring sight of winter that persist as the season progresses to spring. In the background, are the pink of Rhododendron 'Pioneer' and yellow Cornelian cherry (Cornus mas) blossoms. This dramatic sweep of color both glorifies and stabilizes the southern slope of WPA's Joseph Witt Winter Garden.

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The Arboretum Foundation is a nonprofit organization that was chartered to further Washington Park Arboretum development, projects, and programs through volunteer service and fund raising. Its mission is to ensure stewardship for the Washington Park Arboretum, a Pacific Northwest treasure, and to provide horticultural leadership for the region. This stewardship requires effective leadership, stable funding, and broad public support.

Washington Park Arboretum (WPA) is administered cooperatively between the University of Washington's Center for Urban Horticulture (CUH) and the City of Seattle Department of Parks and Recreation. The programs and plant collections are a responsibility of CUH.

WPA is a living plant museum emphasizing trees and shrubs hardy in the maritime Pacific Northwest. Plant collections are selected and arranged to display their beauty and function in urban landscapes, to demonstrate their natural ecology and diversity, and to conserve important species and cultivated varieties for the future. The arboretum serves the public, students at all levels, naturalists, gardeners, and nursery and landscape professionals with its collections, educational programs, interpretation, and recreational opportunities.

The Arboretum Foundation: Horticultural leadership through funding, volunteer services, and programs.



Volunteer with children, such as these Branching Out participants from the Yesler community.



One supporter of the extraordinary mountain ash collection will receive a beautiful original drawing (page 19).

It Takes a Volunteer...

he Arboretum Foundation is a venerable organization with many traditions. Though the mission and core values are solid, our institution must continue to operate and grow in a world that is changing rapidly. Looking forward to 1999's new ideas, projects, and challenges, let's recall some of the exciting developments that brought us to this new year.

For example, would our founders have envisioned such innovations as the new Web page for Pat Calvert Greenhouse, designed by one of our own greenhouse volunteers (nsccux.sccd.ctc.edu/~eaomera/)? And who would have imagined that the Spring Plant Sale celebrates its 50th anniversary this year in an airplane hanger?

Also due to volunteers, February is the eleventh year that we've been able to be part of the Northwest Flower & Garden Show. Please come visit this year's display garden, and find out more about what an arboretum is and can be.

These examples tell the story of a unique group of volunteers and staff who make up today's Arboretum Foundation—hard working, plant loving, talented, and committed.

The Foundation continues to offer as many opportunities for involvement as there are talented people with ideas. I challenge those of you that are already active volunteers and members to introduce a friend or new neighbor to at least one activity or event this year. Involve someone as a volunteer in your favorite program. Or reserve an Explorer Pack filled with activities for children, and rediscover the arboretum's 230 acres through a child's eyes.

You'll find many ways to enjoy the arboretum and all it has to offer, so just give us a call. The year promises to be yet another exciting one for the Arboretum Foundation and the people who make this living museum thrive.

Executive Director,
The Arboretum Foundation





TOP: Vaccinium ovatum (evergreen huckleberry)

BOTTOM: Mahonia nervosa (low Oregon grape).

Native Plants to Keep Slopes Stable

BY KATHY PARKER
PHOTOS BY JOY SPURR

Sound beaches, you see many steep slopes and bluffs that show no sign of movement. Researchers in erosion control refer to these as good reference sites—places to study that show how vegetation enhances slope stability. Other factors involved in the success or failure of fully vegetated slopes include geology, hydrologic patterns, degree of steepness, and disturbance.

Advantages of Vegetation on Slopes

Vegetation can be a critical component in maintaining slope stability because it performs a major engineering role in protecting the landscape; this is shown when vegetation is removed. When fully vegetated and well drained, till can remain stable on slopes as steep as 60°. But in the absence of vegetation, dry till remains stable on 45° slopes until saturated; at that point, it

becomes unstable on slopes as gradual as 15° (see the 1994 Washington State Department of Ecology publication, "Management Options for Unstable Bluffs in Puget Sound, Washington. Coastal Erosion Management Studies," by K. Macdonald and B. Witek).

Vegetation deals well with copious amounts of water. Think of standing in the rain forest during a soupy coastal rain. Tree canopies act like umbrellas, slowing and storing rain. Trunks and limbs turn dark and slowly drip, metering out moisture well past the storm. Beneath the trees, soft and absorbent soil from generations of litter is filled with microorganisms that keep the soil loose and sponge-like. At ground level, the roughness and texture of surface roots slow and trap water and sediment, decreasing its erosive potential. Deeper penetrating roots bind the soil while absorbing and pulling water through their systems, removing water from the slopes as they transpire.

When you look closely at stable sites, such as the slopes above Puget Sound beaches, they are vegetated with a diverse mixture of native plants that have adapted to Northwest soils and climate over the ages. Genetically, these plants evolved to thrive in rainy winters and droughty summers.

During this botanical evolution, wildlife from fox to eagle has changed right along with the plants and become accustomed to these particular species for food and shelter. Madrona, for example, offers the preferred dinner for the native band-tailed pigeon (berries), while being an excellent erosion control tree. The alder is often first to recolonize disturbed sites and restore nitrogen to the soil so other plants can follow and reestablish. What many of us consider to be junk trees are really the superstars in erosion control and wildlife habitat along Puget Sound bluffs.

Homeowners along steep slopes should learn which plants are native and, of those, which have the highest potential for erosion control. Look with new eyes at what works on successful sites, because that is what will work on your slopes. It is so much more cost effective to protect and maintain an existing native plant community than to try to restore a collapsed hillside. If your slope is all or partially covered by a diverse mix of native plant material, by all means tread gently and thoughtfully to preserve its integrity, for it takes centuries to evolve to what it is today.

How to Maintain a Slope

With increased development, there I much pressure to open views, dump clippings, remove salal, put in lawns, install pipes that drain over the hill, and pave with asphalt. Until we look at our timeless native plant communities through different eyes, we will continue to precipitate more slides than nature ever intended.

Opening a view. Before removing vegetation to open a view, call in a certified arborist to assess your trees and help you decide how to treat view corridors. Ask about pruning techniques that can open views while still enabling plants and their roots to perform their roles.

Dumping over the hill. Limit the quantity of vegetative debris dumped over the slope; though beneficial in small doses, in large doses it smothers important vegetation.

Minimize grass. Although lawn is better than bare soil, its shallow rooting characteristics and lack of canopy are not as effective at erosion control as a mixture of native ground covers. Salal is one of the most important erosion control plants, though one of the most difficult to reestablish. If you are lucky enough to have it creeping up and over your hill, let it move into your lawn and create a deep, protective vegetative barrier on the crest of the slope. Sculpt a beautiful edge and tuck in some low-growing native plants. Add Oregon grape, snowberry, wild rose, and sword fern for variety and color. Vegetating the slope crest is key to slowing runoff and preventing erosion.

Find alternatives to pavement. Gather ideas on installing various permeable surfaces that are aesthetically pleasing and more environmentally kind than swaths of asphalt or concrete.

With increased pavement, few greenbelts, and relentless rains, slopes become heavier and more saturated than ever before. As natural sponges diminish, more sophisticated and expensive methods of drainage become a necessity. It is imperative that you not add anymore water than that which occurs naturally.

Be sensitive to adding new drainage patterns. Make sure your downspout, septic tank, sprinkler, pool, and hot tub systems are correctly designed and leak proof. Often these drainage systems were installed years before sensitive slope dynamics were understood, so monitor, inspect, and repair all water sources. We cannot change an unusually wet winter, but we do have control of the drainage patterns on our own property and hopefully can influence our neighbors.

Restoration Can Be Costly

If your slope fails, you still have some possible options. Geologists, hydrologists, and geotechnical engineers can help assess the damage and determine the cause. Regrading, structural solutions, and new drainage systems may be costly, though necessary to help reestablish the integrity of the slope before any vegetative restoration begins.

Replanting with Natives

Getting plants to regrow on slopes can be daunting. Topsoil is usually gone, water is usually not available, and any irrigation must be done carefully to avoid further slippage. Physically installing the plants is demanding, and sun exposure on wide-open slopes can be brutal during the summer months. Therefore, it is important that you or a horticultural expert assess degree of sun exposure throughout the day, the availability of water, the condition of the soil, the value of remaining vegetation, the amount of invasive exotic plant material, the microclimates throughout the slope, and further environmental stress that might affect your plants. Your goal of reestablishing a diversified native plant community will only happen when you create an environment in which your new plants can grow.

Depending on the degree of steepness, it is often impossible to amend what remains of the native soil. Soil tests determine glaring deficiencies which hopefully can be improved at the time of planting. If you are doing structural work, top soil and amendments might be applied with available heavy equipment. If soil improvements are recommended, they are worth the effort because plant establishment depends on available nutrients, soil porosity, and pH levels.

Because plant establishment takes up to three years, it is often wise to drape a slope with a snugly fitted mat before planting. These range from straw to synthetic material. Such products slow surface erosion, create a small microsite for better plant establishment, and trap the soil in place long enough for the roots to take hold.

It is difficult to move and haul plant material on steep slopes, so the smaller the plant, the easier the installation. Cuttings, bare-root plants, and 4-inch pots weigh less and require smaller invasive holes. Restoration nurseries are equipped

to propagate and deliver healthy, appropriately sized native plant material to your planting site. Planting any time from fall to spring usually ensures adequate moisture for establishment, but avoid planting during the coldest days.

Mulches help little starts throughout long droughty summers and periods of winter cold. Expected losses can be compensated for by close spacing of plants and the presence of wind-borne volunteers. Welcome leaves dropped from surrounding big-leaf maples and alders because they offer much-needed protection and future organic matter.

Look to your reference sites for plant communities that work well together, and then design an overall plan incorporating trees, shrubs, and ground covers that will grow in your specific microclimates. For better establishment, plant the right plant in the right place. In other words, if you have a shady, wet microclimate, only use plants that like shade and moisture. Examples from our native forests range from cedar to vine maple, red osier dogwood, salmonberry, Oregon grape, evergreen huckleberry, and sword fern.

A sunny wet spot might host red osier dogwood, willow, ocean spray, and Douglas spiraea. On sunny dry spots, consider Douglas-fir, shore pine, incense cedar, mock orange, hazelnut, manzanita, snowberry, kinnikinnick, and the imbricate sword fern. Holding their own in dry shade are sword fern, low-growing Oregon grape, snowberry, salal, evergreen huckleberry, and hazelnut.

Some native plants are so tough and adaptable that they grow in both sun and shade. Vine maple grows shorter with smaller leaves on mountainous rocky scree, while its leaves grow wider and limbs leggier under the canopy of tall trees. Oregon grape moves across dry open highway medians and also flourishes in dry shade under tall maples.

Nursery people and reference books will guide your plant selection. *Gardening with Native Plants* by Arthur Kruckeberg is a favorite reference on native cultural requirements.

Monitoring

Upon completion, stay vigilant, for the exotics will move in (blackberry, ivy, morning glory); the bugs and other animals will feed, the mulch slough, and the nitrogen leach. At first your slope will need consistent care.

Frequent maintenance should occur clos-

est to planting dates and taper off with establishment. Robin Sotir, an expert in bioengineering, recommends inspection biweekly for the first 2 months, monthly in the next 6 months, every 6 months during the initial 2-year establishment period, and extra inspections during periods of drought and heavy rains. The final inspection should occur around 2 years after installation is completed. Maintenance and any needed adjustments can be made during these monitoring visits. Consistent monitoring and maintenance of plants and slide areas should be done so problems can be remedied before major and costly issues arise.

The goal is not to garden but rather to aid native species to establish quickly and spread successfully to aid slope stability.

Kathy Parker has a master's degree from the University of Washington Center for Urban Horticulture. She runs Forever Green LLC, a consulting firm; reach her via e-mail: parkerh@wdni.com

Maintaining Newly Planted Sic

- 1. Remove encroaching weeds and exotics,
- 2. Reestablish irrigation wells,
- 3. Carefully supply supplemental water,
- 4. Supplement mulch to the recommended depth,
- 5. Add recommended soil amendments,
- 6. Prune dead and diseased material,
- 7. Revegetate bare spots with recommended vegetation, and
- 8. Incorporate techniques to minimize other unexpected disturbances, such as washouts and insect infestation.



What in the Arboretum?

Maintenance & Decline in the Physical Terrain

Astudy of the geology of the land in the arboretum tells us that it is glacial terrain, essentially very unstable. In the last few years, we have seen much slippage on the slope below the Lookout. When heavy rains occur, some pathways have been closed with mud slides. Most of the water lines laid during WPA/CCC times have broken with land movement. The shore line around Duck Bay is badly eroding in many places due to overuse. Below is an example of how shortcuts through arboretum hills decrease soil stability.



ov Spur

Volume 60:4 7

photo by Jan Silve

Winter Ground Covers in My Home Garden BY JOHN A. WOTT

A glimpse into WPA Director John Wott's evergreen ground-cover collection



A winter scene at Dr. Wott's home during December. Coralbark maple (Acer palmatum 'Sango Kaku') is in the background. The dwarf conifer to the right is Thujopsis dolobrata 'Nana', and the grass (left) is Miscanthus sinensis 'Yaku Jima', and Cotoneaster 'Gnome' covers the ground in a carpet of red berries.

Cotoneaster salicifolius 'Gnome'. I value this selection because it keeps itself prostrate and completely covers the ground, eliminating weeds. It thrives in full sun and does well in my parking strip. The glossy linear leaves are dense with white undersides, and the white flowers that abound in spring are followed by clusters of orange-red berries in the fall. The fruit persists into the winter. This cultivar was originally brought to us by the late Director Emeritus of Washington Park Arboretum, Brian Mulligan.

Euonymus 'Nanus' var. turkestanica. This evergreen species tolerates dry soil but does better where it is not out-competed by other ground covers. The delicate evergreen leaves and near prostrate wiry stems are usually covered with colorful fruits of pink and orange in autumn.

Gaultheria mucronata 'Thymifolia'. This dwarf evergreen shrub is one of my favorites, with its tiny, dark green foliage. The tiny male plant contrasts with the larger female plants, which produce the luscious purple-pink berries that persist throughout the winter. Even the male provides useful winter color, however.

Lysimachia nummularia 'Aurea'. Dan Hinkley calls this a rambunctious radioactive hit of plutonium. The bright yellow color hugs the ground and persists well into the winter. Place with purple-colored plants for best contrast. A must for brightening up even darkest colors, and if we are lucky to have an early spring, it will delight you even sooner.

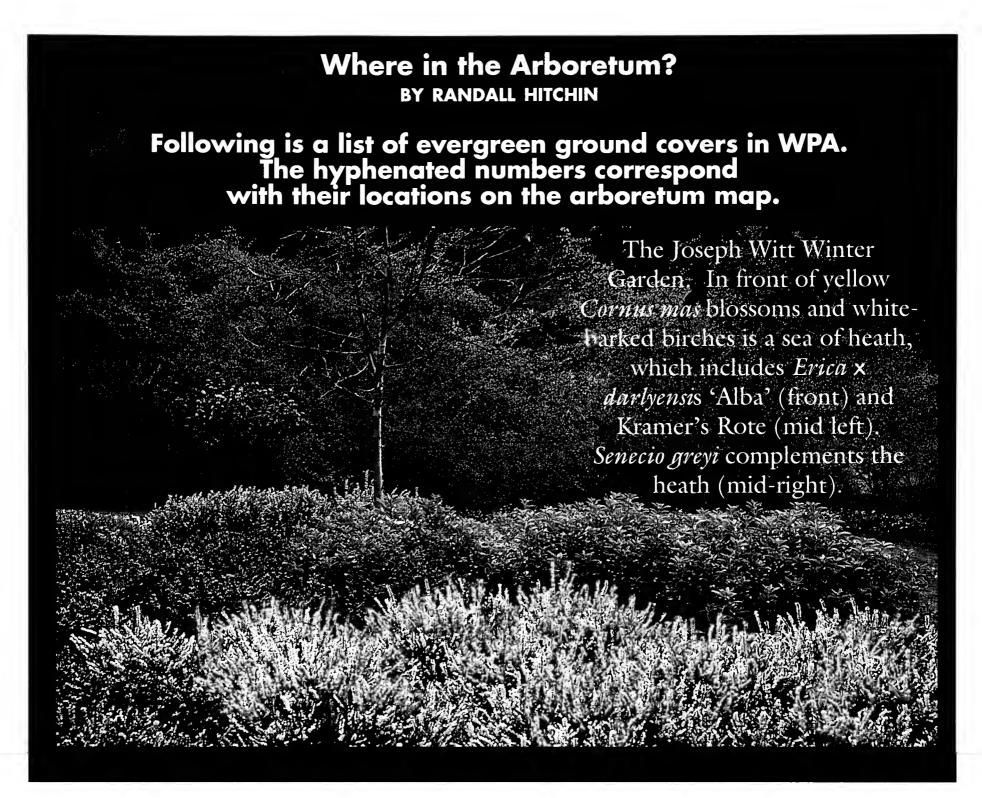
Ophiopogon planiscapus 'Ebony Knight'. Actually a member of the lily family, this perennial produces leathery, ever-black tufts of grass-like foliage that contrast well with winter yellows and near winter-blooming hellebores. It slowly becomes a mat.

Sedum 'Vera Jameson'. Although technically not an evergreen ground cover, the special autumn color of this plant is awesome. The smoky-blue foliage occurs on usually horizontally held stems that become more bent as the season advances. The rich rosy-pink flowers are a fall addition. Flower heads, although faded, persist into the winter (especially light winters), along with the foliage.

Stachys byzantina 'Big Ears'. This plant is just a delight along my garden path. The spreading, large fuzzy felted-leafed plant is unusually interesting as the fall and winter progress. It loves full sun and well-drained soil. Though it eventually dies back, it is well worth having it during much of the winter.

John Wott is the Director of Washington Park Arboretum.

Learn more about ground covers on display in the winter arboretum on page 10.



Calluna vulgaris 'Gold Haze' (Scots heather, 35-B; Winter Garden). This dwarf and spreading shrub reaches 1.5 feet tall. The small flowers are white or pink flushed and urn-shaped. The leaves are scalelike and pressed to the stem, giving somewhat the impression of a conifer. In winter, the foliage of this cultivar takes on golden yellow tones.

Erica carnea (winter heath) (35-B; Winter Garden). Reaching up to 10 inches tall, this low, spreading shrub has needlelike leaves, creating a fine texture. The small urn-shaped flowers are white, pink, or red and produced from December to March. The foliage of some of the cultivars takes on bronze tones in winter.

Gaultheria mucronata (known by its former name, Pernettya mucronata) (21-3E; Mediterranean Garden). With compact growth, it reaches 1–2 feet, spreading by rhizomes. The small leaves have a hard, sharp tip. The white urn-shaped flowers come in spring, followed by berries (from white and pink to purple) that hold on plants well into winter.

Hebe pinguifolia (40-3E; Visitors Center). A low-spreading shrub, 8–18 inches high, it has small, nearly round blue-gray leaves. The clusters of small white flowers appear in spring.

Jasminum nudiflorum (winter jasmine) (35-B; Winter Garden). This shrub of 3 feet high and 9 feet wide has thin, arching stems. Though deciduous, its green stems make it appear evergreen. The leaves are about .5 inch long; yellow flowers are produced in winter and early spring.

Ruscus aculeatus (butcher's broom) (30-1E; head of Rhododendron Glen). A low shrub, 1-3 feet, it spreads by suckers. The hard, leathery leaves are 1-3 inches long with a sharp tip. Fruits are .75-inch red berries that are held into winter. This plant is tolerant of dry shade.

Sarcococca hookeriana var. humilis (dwarf winter box) (35-1E; Winter Garden). This low shrublet reaches 1 foot, spreading by rhizomes. The dark green leaves are lance-shaped; the small white flowers are intensely fragrant in winter. Sarcococca tolerates dry shade and loves full sun and well-drained soil.



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How in the Arboretum? Uncovering Your Stored Gems~ Planting Out Containers

BY BARBARA SELEMON

In the fall, are you someone who seems to end up with several containerized plants that did not find a home in your gardenscape? Now, it is late winter—early spring, and the time has come to uncover these precious gems.

When to Plant

If the weather is conducive to working in the garden, February is a good time to plant the still-dormant woody trees and shrubs that you had stored from the extended cold periods of winter. The weather is still cool, but root growth will proceed as the ground temperatures begin to warm. By late February, the buds are beginning to break and leaf expansion is taking place. This is a very active growth phase for plants and a more stressful time to transplant if the weather







LEFT: Roots continue to grow throughout the winter. Prune off roots that have grown outside of the container prior to transplanting.

TOP: Conifers may successfully be unpotted during the dormant season.

ABOVE: Avoid transplanting deciduous hardwoods during the active growth cycle. Photos by Jan Silver

is very mild and warm. For deciduous hardwoods that were not transplanted during the dormant period, it is best to wait until the leaves have fully expanded and then to plant out, rather than to interrupt the developmental stage.

Likewise, with coniferous plants, avoid planting out while the cones are developing. For herbaceous plants, it is best to wait until the middle of March and beyond to plant, when the greatest danger of subfreezing temperatures has past. In general, wait until flowering has peaked to plant out that glorious spring-flowering specimen. The flower buds are much more sensitive to stress than the foliage buds. Remember to keep your new transplant watered well for the first two seasons in the ground.

To Repot or Not?

Sometimes, overwintered plants are brought out and destined to remain in a container for one reason or another. If this is the case, the question becomes to pot or not. In most cases, unpotting is a good idea.

As a nursery person, I prefer to repot most plants in the fall. This ensures better insulation around the root zone, which is vulnerable to damage at temperatures from 20° to 25° F for extended periods of time. A potbound plant will suffer much more damage than a newly potted one.

Transplanting to a new container in the spring is also a good idea. In late winter and early spring, repotting broad-leaved evergreens is a good practice. Most of these plants are not pushing new growth now. The same rules apply to containerized deciduous and coniferous plants as to those going out to the landscape. Avoid unpotting a plant when its growth cycle is high, since it is possible to stunt or cause branches to die back if the transplanting is overly stressful. Herbaceous perennials are quite safe to repot when not in the flowering stage.

Once you have repotted your plants, be certain to keep them well fertilized and watered throughout the growing season. This will preserve the value of your stored gems until the next planting season.

Barbara Selemon is Plant Propagator for the Center for Urban Horticulture/Washington Park Arboretum. Reach her at 206-543-8616, or via e-mail: selemon@u.washington.edu





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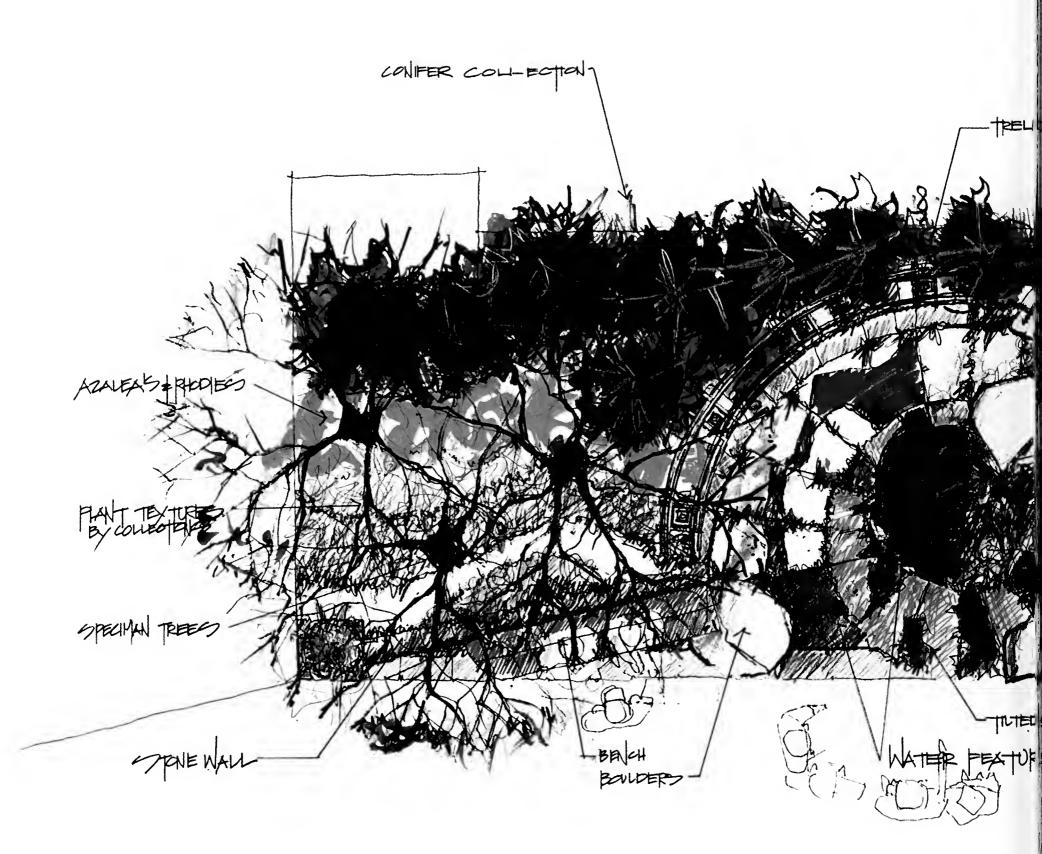
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Washington Park Arboretum

"Seattle's Best Kept Secret"

Learn more about WPA at the 1999 Northwest Flower & Garden Show. BY LAURIE LARSON Foundation decided to re the show began in the late 1 that arose during the construction of the of work involved and the need for more issues of whether to continue to sponso remain an annual commitment.

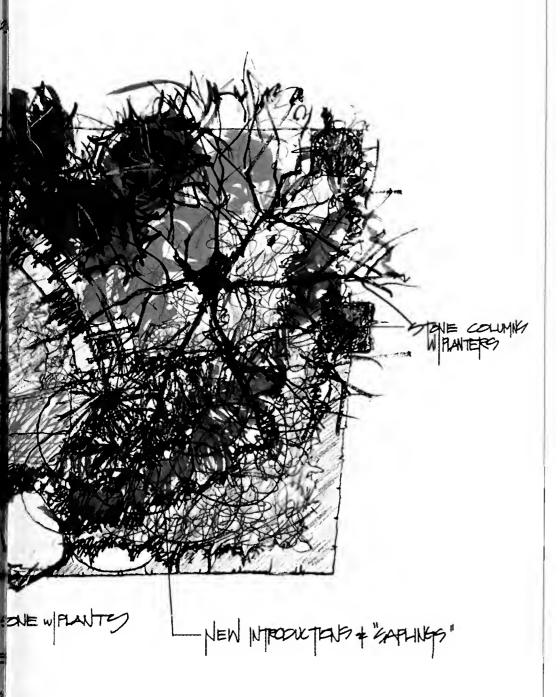
Considering the educational oppomade to continue the creation of an a



Flower & Garden Show, the Arboretum luate its presence, which started when start, the committee discussed issues 98 garden, such as recognizing the amount unteer help. The committee looked at the display garden and if involvement should

nities the show provides, the decision was ual display garden. The next step was to

(continued on page 16)



Meet the Arboretum Foundation at the Northwest Flower & Garden Show

When: February 17–21, 1999.
Preview Party: See the display gardens during the eleventh annual Preview Gala:

Tuesday, February 16, 1999 5:30-9 PM

Purchase tickets in advance: \$85 Call 206-726-1954 for credit card sales, or buy in person at Graham Visitors Center, 2300 Arboretum Dr. East.

Special features of the gala:

Meet the designers

No crowds

Food

A silent auction

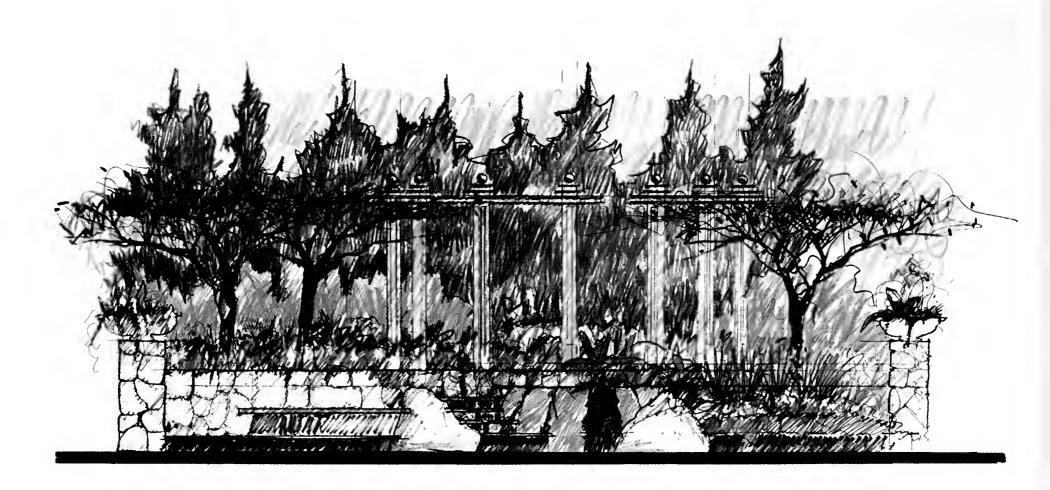
Where: Washington State Convention & Trade Center

Why: Gala proceeds benefit the arboretum's maintenance fund.

Who: Meet the Arboretum Foundation staff and volunteers at the display garden on the main level.

What: "Seattle's Best Kept Secret":
The arboretum's role as a living museum provides us with an important link to the past. Several stately trees watch over this garden, while stone columns and walls link it to the rich legacy of the arboretum. The center spiral of tilted stone, which is framed by representatives of the various conifer collections, features an upper pool and a stair-stepping stream. Collections from Azalea Way and the Witt Winter Garden are represented as well as new introductions.

This continues the arboretum's role as a resource for preservation and education into the future.



choose a designer for the arboretum's 1999 display garden. Landscape Architect Brad Pugh was selected, and the design process began immediately.

As you enjoy this year's display, keep in mind what lies behind the garden's design. It is meant both for you to enjoy and to get you excited about joining our activities.

The most important criterion is to build support for the arboretum. Staff and volunteers hope to convey that the arboretum is a living museum, which has public education as a primary goal. It is important for the arboretum to create public awareness of this valuable community asset.

Second, you will find an information center at this year's display. Come and find out more about being part of arboretum activities, membership, and plans for the future.

Third, learn more about just what an arboretum is, based on guidelines used by the Arboretum Foundation (see the opposite page).

Last, you will be able to enjoy at the Garden Show the type of garden you could find in a living museum or museum setting, such as Washington Park Arboretum.

Laurie Larson is co-owner of Larson-Casteel, a design firm based in Kingston, Washington. Co-owner Brad Pugh, landscape architect, is the designer of this display garden. Reach them at 360-697-5719 and via e-mail: larascast@amouse.net

Winter Plants at the Northwest Flower & Garden Show

Acer (maples)
Arbutus 'Marina'
Cedrus atlantica 'Glauca' (blue atlas cedar)
Cornus stolonifera (redtwig dogwood)
Cornus stolonifera 'Flaviramea'
(yellowtwig dogwood)
Daphne species
Erica species (heath)
Gaultheria species
Hamamelis species (witch hazel)
Helleborus species

pla

pla

Ski

Vi

Witch Hazel (Hamamelis)

Variegated Ilex
(holly)
Ophiopogon
planiscapus 'Ebony
Knight' (black
mondo grass)
Sarcococca
hookeriana var.
humilis (dwarf
winter box)
Skimmia japonica
Viburnum species

What is an Arboretum?

BY BRYAN TAULBEE

A Place for Plants

n arboretum is a living museum, an organized botanical garden of trees and other woody plants that are professionally cared for and fully documented for research, education, conservation and display. Some arboreta specialize in regional collections, while others cultivate plants from around the world.

Unlike display gardens, which are solely designed for aesthetic enjoyment and often include indoor collections or seasonal floral displays, arboreta are usually dedicated to trees and plants able to survive local climates year-round.

A Place for Science

Worldwide, science is seeking greater understanding of biodiversity—the complex web of life that underlies the planet's ecological systems and sustains human well-being. Arboreta, with their ability to cultivate and study diverse plant species, play an expanding role in research dedicated to preserving biodiversity and illustrate the great value of plants to human civilization.

Arboreta-based scientists research disease, pest and drought resistance, endangered species preservation, and organic and urban horticulture. They also produce findings useful to industry, agriculture, environmental protection, and public and private gardeners. By working cooperatively with universities, research institutions, and government agencies, arboreta provide prudent investment of public and private research funds and resources.

A Place for People

Usually located in urban areas, arboreta are green oases of tranquillity, aesthetic enjoyment, and passive recreation. Arboreta, as few other places can, allow individuals, families, and communities to become physically and intellectually engaged with plant life, providing greater appreciation of the natural world we inhabit and affect.

Arboreta are living classrooms for students of all ages and backgrounds, offering fun, hands-on learning opportunities that complement school science curricula and leisure gardeners' interest and expertise. Arboreta volunteer programs provide individuals and groups with active, ongoing involvement in their community's environment and quality of life.

Bryan Taulbee is Special Programs Coordinator of the Arboretum Foundation.

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The Art of Mountain Ash

BY BRYAN TAULBEE

Capture the beauty of mountain ash in a one-of-a-kind creation, and help save the mountain ash collection at Washington Park Arboretum. Donors may bid for a pen-and-ink drawing of a WPA *Sorbus* (opposite page), done by noted British artist Elizabeth Reed Smith. This work includes two perspectives: a close-up of the tree in berry and leaf as well as an overview in late summer.

The Arboretum Foundation is pleased to offer this stunning work of original art. For a high bid (minimum \$2,000) the original, in a frame chosen by the artist, can be yours.

Proceeds will benefit the Arboretum Foundation's campaign to save WPA's extensive *Sorbus* Collection of mountain ash tree and shrub varieties, which are threatened by poor drainage conditions.

Elizabeth Reed Smith's specialty is fine line pen-and-ink portraiture of trees. She is a selected artist of England's Woodland Trust and has more recently shown her work in the United States.

The drawing's dimensions are $9"(w) \times 12"(h)$. Portrayed is *Sorbus scopulina* var. *cascadensis*, which can be found in upland areas from British Columbia to California.

To place a bid, or for more information, call the Arboretum Foundation at 206-325-4510. Bids must be received by February 28, 1999.



Where in the Arboretum?

Beyond Taxonomic Collections to Multi-Purpose Gardens



Part of the arboretum's master plan is for WPA gardens to become more multi-purpose so they can be enjoyed by researchers and the public, alike.

The Mulligan *Sorbus* Collection is an example of a significant taxonomic collection that is laid out to be appreciated whether you are out for a stroll or whether you wish to study all 78 types of *Sorbus* in the arboretum's unique collection.

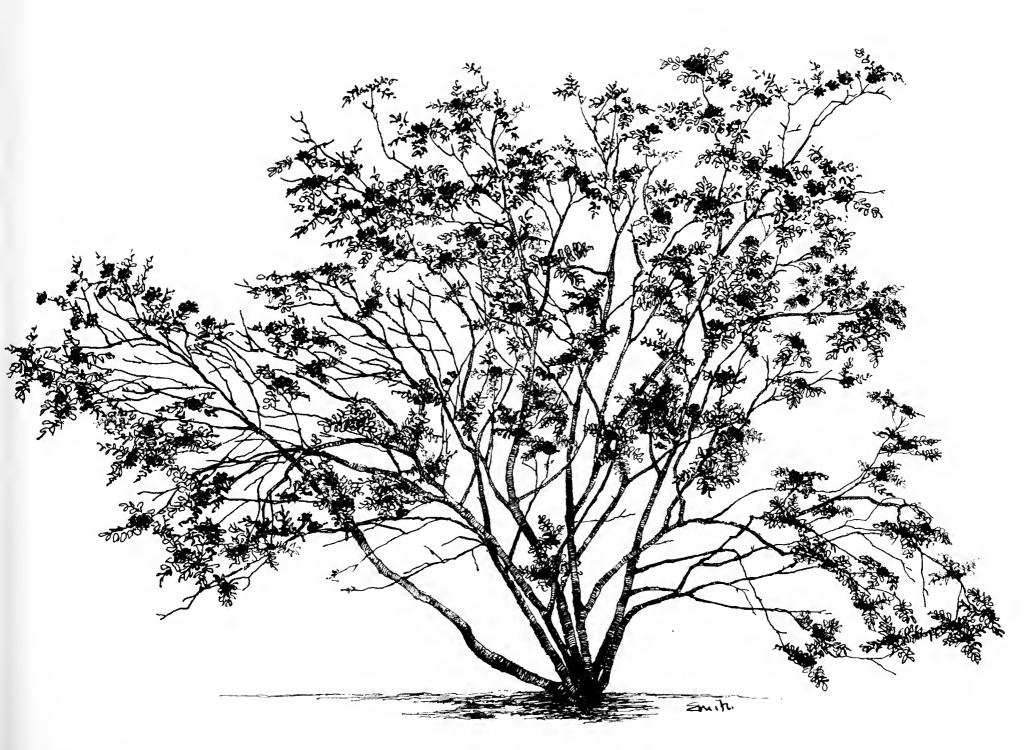
To bid on the framed original artwork of *Sorbus scopulina* var. *cascadensis*, depicted on the opposite page, please contact the Arboretum Foundation at 206-325-4510 by February 28, 1999.

Locate the Arboretum's Cascade mountain ashes in grid 25-4E on an arboretum map.

Accession 40-52 (the fortieth arboretum accession in 1952) was wild-collected by Carl English near Lake Keechelus, on the west edge of Kittitas County, Washington.

Smith's drawing is of 1052-50, seed-lings wild-collected in 1950 by then-Director Brian Mulligan, in the upper Chiwawa River Valley of Washington State. Next to the two specimens in the collection is *Sorbus dumosa*. To find these trees, park in the lot directly across from (east of) the Magnolia sign on Arboretum Drive East. There, enter the service road at the sign that says: "No parking. Service vehicles only." A few feet in, on the right, are the 1052-50 seedlings, now mature specimens.





Don't Treat Your Soil like Dirt

ARTHUR R. KRUCKEBERG & MARY ROBSON

The Dirt. Signs proclaim availability, but have you ever seen a sign offering "Free Soil"? Of course dirt is free. Anyone who's ever cleaned a house or tidied an old garage knows that dirt costs nothing and arrives unbidden. Dirt: It is the blackish scum that appears outdoors on a freshly painted white windowsill, or the film clouding a seldom-used casserole dish from the top shelf. Dirt is random, unwelcome, and requires handling with rubber gloves. Dirt is not generally considered a living substance, or rather, most of us do not want to think of what might be living in it. Dirt may be composed of intriguing components such as old spiderwebs, insect detritus, dog hair, and sweater lint, but it is never desired.

Gardeners crave and covet *soil*. The fragrance of a turned-over shovelful of soil in early spring thrills the winter-bound soul. Soil—complex, appealing to all five senses—has mineral, organic, and living elements combined. The gradual reduction of rock to grit, the stems and fallen leaves of autumn, the microorganisms of decay and growth: These are some components of soil in the temperate zone. Soil can be studied

scientifically or appreciated as the poetry of earth.

Soil lives and changes. Some soil changes occur in geologic time, volcanically or catastrophically. The weathering of minerals, as lichens and moss gradually reduce rock to fragments, occurs more slowly than gardeners can see. But the quick decay of compost dug into the spring garden and the mulch of leaves disappearing into the upper soil surface are visible changes. Gardeners proudly say they "build soil," but the infinitely small contribution of the individual to the earth's soil should help us with perspective. The natural processes of the earth build soil.

The microfauna of the soil colonize plant roots and assist in making nutrients available to plants. A native plant in its own ecosystem participates in the life of the soil. Cleaning up dirt is only necessity; working with soil is a privilege.

Is there a bottom line to our distinguishing dirt from soil? Try this: For gardeners and lovers of tame and wild nature, it is soil—not dirt—in which all terrestrial life is ultimately rooted. That thin skin of living substance, the soil, mantle of the earth, like sun and water, is the driver of nature. So in gardens, in vacant lots, in old-growth forests, and in Serengeti grasslands, it is soil—not dirt—that nourishes our green world.

Mary Robson is the Washington State University (WSU) extension agent for King and Pierce Counties. Visit WSU's Web site: http://gardening.wsu.edu

Arthur R. Kruckeberg is Professor Emeritus, University of Washington.





Acer davidii var. grosseri. Photo by Joy Spurr.

Variety—Swapping Its Misuse for Its Proper Use

BY ARTHUR R. KRUCKEBERG

have five varieties of maple in my yard." So might say a gardener, justly proud of the maple diversity among the plantings.

But what is meant by "five varieties of maples"? Here we interpret the usage of *varieties* in its loose sense, to mean *kinds*. Thus the gardener is really referring to five *kinds* of maples.

In botany and in horticulture, *kind* could refer to one of several distinguishable forms within the genus of the maples (*Acer*): the species, the subspecies, the variety, and the cultivar. Of these four, the species is the most inclusive. Our local vine maple, *Acer circinatum*, is a wide-

spread species in the Pacific Northwest, with countless populations of individuals over its geographic range.

Should there be a recognizable geographic race, say in the San Juan Islands, it could be named as a subspecies of *A. circinatum*. A local variant, found here and there in the wild, might be recognized as a variety. The subspecies and the variety would be given Latin names, placed after the species names. A cultivar is a distinguishable form that originates in cultivation, such as within a garden or nursery.

All of these designations represent kinds and levels of diversity but are not to be lumped together as *varieties*.

Here are some examples of these categories from maple-land. The scheme applies, of course, to any other plant genus.

Taxonomic Categories

Species (sp.): Acer circinatum, A. palmatum, A. negundo.

Subspecies (ssp.): Acer negundo ssp. californicum.

Variety (var.): Acer davidii var. grosseri. Cultivar (cv): Acer japonicum cv. 'Aconitifolium'; A. davidii cv. 'Ernest Wilson'.

Each is a kind of maple. The first three occur in the wild and can be introduced into cultivation. The bottom kind is only found in cultivation.

A final word then: *Variety* as loosely used by some gardeners, many garden catalogs, and numerous books, can be a misnomer —a catchall for any of several kinds of plants.

When properly used, *variety* indicates any locally recognizable—and named—form of a species found in the wild.

Arthur R. Kruckeberg, author of *Gardening with Native Plants*, is a member of the editorial board of the *Washington Park Arboretum Bulletin*.

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Magnolia sargentiana var. robusta in March. Find 12 specimens throughout the arboretum.

In the Washington Park Arboretum

BY JOHN A. WOTT, DIRECTOR

Fall into Winter

Last fall, WPA gathered new information, new people, and new plants that took us into this winter season.

In October, we hosted 100 members of the Pacific Region of the American Association of Botanical Gardens and Arboreta (AABGA), an organization dedicated to helping public gardens and the people behind them. The meeting fo-



cused on ways to renovate collections and programs in an older garden—perfect for our current needs. Attendees who toured WPA were impressed with the level of care being given our gardens, considering the inadequate level of staffing. They also appreciated the Northwest's BIG trees and our community outreach efforts.

Lou Stubecki, WPA arborist, attended an

American Society of Consulting Arborists conference last fall where he learned about the use of mychorrhiza to improve tree vigor and combat root disease. This information is very important as we try to stall the progress of *Phytophthera* in the stand of Port Orford cedars along Arboretum Drive East.

The last stage of rock work has been completed in Rhododendron Glen, reports WPA Horticulturist Christina Pfeiffer. Designed by landscape architect Polly Hankin, the stone stair-step cascade in the creek bed will help with erosion problems. Additional groundcover plantings will be added to the slopes.

We can now report that in 1998, the arboretum received the assistance of more volunteer groups than in previous years. They pulled weeds and removed invasive ivy. Participants included the University of Washington School of Architecture; Clothier and Head, accountants; CH2M Hill; and a group of neighbors. Their combined efforts were the equivalent of 7 weeks of full-time staff labor.

Collections Manager Randall Hitchin led a seed collection trip to the area around the north fork of the Teanaway River. Good quantities of 12 species were collected for the 1999 seed exchange that *Index Seminum* enables us to participate in with other like institutions.

WPA is indebted to Daniel Hinkley and Robert Jones of Heronswood Nursery, for donating seeds of 59 accessions from Hinkley's collecting trips to China and other parts of Asia. The exact plants will be noted as they come into the collections.

Propagator Barbara Selemon is supervising a rooting project on Pacific madrone, an impossible-to-root tree. Christina Richmond, an undergraduate student, is experimenting with the *Agrobacterium rhizogenes* injection technique.

The new Saplings Program brought 2500 students to the arboretum in October and November. The children covered the following topics: Discover Plants (grades K–2); Life Cycle of a Plant—Fantastic Fall (grades 3–6); Plants and People of the Pacific Northwest (grades 3–8); and Wetland Ecology Walk (grades K–8).

Our Explorer programs for children and families also center around botanical projects. Tools and information can be rented in Explorer Packs. REI has generously donated 5 new backpacks for this popular program.

Dr. John A. Wott, Professor of Urban Horticulture, is the Director, Washington Park Arboretum.

When in the Arboretum?



The arboretum's master plan suggests adding special, new features to our 230-acre site, such as the ones below.

Updated Greenhouse?

The arboretum plan calls for new, modern greenhouses in approximately the same general location as the current ones. They will include propagation space for the Pat Calvert Greenhouse and plant donations volunteers, as well as for propagating plants for the arboretum. Another use will be for teaching and demonstration purposes. Since our purposes differ from use by large com-



mercial operations that are the model for many greenhouses, WPA is looking at the new Morris Arboretum facilities as models. Though outdated, the Pat Calvert Greenhouse remains open to Arboretum Foundation members and the public who wish to purchase starts from the collections, every Tuesday morning from 10–12. Photo by Joy Spurr

New Demonstration Gardens?

The area south of **▲** the projected new greenhouses is designated for potential demonstration gardens. The Signature Bed in front of Graham Visitors Center is an ideal example of such a garden. Demonstration gardens might highlight new plants or new gardening techniques. A children's arboretum is possible if the master plan is implemented. It would incorporate some of the interactive learning techniques found in children's gardens throughout the



country (such as this one at Longwood Gardens, Pennsylvania). Photo by Jan Silver

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For Further Information:

Color in the Garden

BY VALERIE EASTON

olor, in all its variations and subtleties, may be the single most important element of garden-making; it is certainly the most subjective.

Not only do we all have our favorite colors and those we dislike or even hate, but there is no universal way to describe colors. Think about purple, lavender, maroon, violet—we each have our own reaction to and interpretation of these colors, ranging from deep velvety softness to that shade of violet magenta that makes your teeth hurt.

Our dance with color varies by season, by fashion, by age, by area of the garden, by memory, by part of the country; so, how can we get a handle on it? Several new books make a valiant attempt, and if nothing else they open our eyes to all the possibilities of color, make us aware of our prejudices (yes, orange and pink can look fabulous when cleverly paired), and convince us that the foliage color may be more important than the color of the flowers.

Pope, Nori, and Sandra Pope. Color By Design: Planting the contemporary garden. San Francisco: SOMA Books, 1998. The colormeisters from Hadspen House Garden in Somerset, England, have written my favorite book about color; the photographs by Clive Nichols and the lavish use of color make it the most beautiful. Each chapter is introduced by a double-page color photo of the heart of a flower, showing color at its most intensely saturated, followed by advice on how best to use that color in the garden. You know you are in for a treat with the first glance at the purple cover and hot green flyleaves.

What makes the book unique and what caused me to immediately buy a copy are the double-page panels of flower close-ups, divided by spring, summer, and autumn. If you want to see all the possibilities for the use of orange in your garden, you will find here the hot orange bloom of *Euphorbia griffithii* 'Fireglow' for spring, *Rosa* 'Westerland' for a clear summer or-

ange, and then the pumpkin-colored *Dahlia* 'David Howard' for autumn, among many other examples. This sumptuous color detail is given for blue, green, yellow, orange, red, plum, pink, peach, and white, along with a plant directory with more information on each plant pictured.

Royal Horticultural Society. RHS Colour Chart. 3rd ed. London: RHS, 1998. In an attempt to eliminate some of the ambiguity of color names and descriptions, the RHS uses numbers in this new edition of their color chart. The bright fans look like an array of paint chips, and have served since 1966 as the standard reference to precisely identify and describe the colors of flowers, foliage, and fruit. Every sheet holds four colors (808 different shades and tones in all), each with a little hole in it to put over petal or leaf to aid in exacting comparisons.



When in the Arboretum?

More Color in the Future...

people visit the arboretum for ideas for their own gardens. The Winter Garden attracts thousands each year, who leave inspired about landscaping for this season.



The arboretum plan proposes some additional landscape gardens, such as a Summer Color Garden, a Children's Garden, or a Rockery.

рното: The pink bracts of Corylopsis sinensis (winter hazel). Photo by Joy Spurr McDonald, Elvin. The Color Garden (Blue, Yellow, White and Red): Single color plantings for dramatic landscapes. San Francisco: Collins Publishers, 1995. "The white garden is soothing and restful, but it lacks the reassurance of blue, the motion of yellow, or the force of red," says the introduction to this set of four volumes, each devoted to a single color. Design, fragrance, complementary color schemes, aquatics, and seasonal choices are discussed for each color. The volume on blue is particularly welcome, as this most restful of colors is scarcer and more underused in our gardens than the other ones. Excellent photos show the full ranges of each color and how to use them most effectively in a wide range of garden styles.

Lawson, Andrew. The Gardener's Book of Color: Creating contrasts, harmonies, and multicolor themes in your garden. Pleasantville, NY: The Reader's Digest Association, 1996. Do you remember those grade-school lessons about the color wheel and how the cones in the eye refract light? The color wheel in this book is crowded with flowers; the introductory chapters on the color wheel, saturation, tones, and light are, I suspect, just about the right amount of color theory and at the right level, for most gardeners. What this book does best is to show combinations of plants together, planted to create harmonies, contrasts, or mixed colors. The examples of unexpected mixing of colors are surprising and effective: lime-green and blues, scarlet and orange, as well as blacks and whites. Lawson is not afraid of photographing complicated gardens, and he does it beautifully, showing vines, perennials, trees, shrubs, and annuals mixed together to give a clear idea of foliage and flower color combinations.

More Reading

Austin, Sandra. Color in Garden Design. Newtown, CT: Taunton Press, 1998.

Bloom, Adrian. Year-Round Garden: Colour in your garden from January to December. Portland, OR: Timber Press, 1998.

Hobhouse, Penelope. Color in Your Garden. Boston: Little, Brown, 1985.

Jekyll, Gertrude. Colour Schemes for the Flower Garden. Introduced and revised by Graham Stuart Thomas. Salem, NH: The Ayer Company, 1983.

Keen, Mary. Gardening With Color. New York: Random House, 1991.

Valerie Easton is a freelance gardening writer and editor. She manages the Miller Library at the Center for Urban Horticulture, Seattle. Call the library at 206-543-0415; e-mail: hortlib@u.washington.edu

Gardening with Grasses

Michael King and Piet Oudolf.
Forward by Beth Chatto. 161 color photos.
Portland, OR: Timber Press, 1998.
Hard cover, \$34.95.

ichael King and Piet Oudolf make good use of their broad botanical, horticultural, and design expertise in the creation of this beautiful book. *Gardening with Grasses* brings together an array of high-quality photographs and a concise reference catalog of useful ornamental grasses. It provides information and inspires gardeners on a scale from small city plots to those designing grand country estates. The book can help all gardeners to make effective use of the unique attributes of grasses.

Ornamental grasses are increasingly important to the garden design palette, and nurseries offer more new grasses with each season. Graceful, dramatic, drought-tolerant, and pest-resistant, ornamental grasses can be used to stunning effect in the cool dry summers and wet winters that challenge the Pacific Northwest gardener. This book provides a good orientation to the use and culture of new varieties as well as old standbys that perform well in our region.

The striking photographs, most of which were taken by the authors, provide the reader with outstanding examples of effective uses of grasses in contemporary landscape settings, ranging from perennial borders to containers, ground covers, and specimen plantings. Useful details help the reader to integrate grasses and perennial companion plants harmoniously with landscape features, such as buildings and ponds. The text explores the unique attributes of the grasses and their ability to provide structure, rhythm, color, motion—even light and sound—to the garden.

The catalog of grasses, sedges, and rushes provides cultural details and frank perspectives on their use in garden design. The catalog contains entries for more than 150 of the most useful and available plants and provides upto-date entries for recent introductions. Whatever the scale of your own gardening endeavors, this book is delightful and useful.

Eric Nelson shares lessons learned in his Fremont garden as a frequent lecturer on gardening with ornamental grasses in the Pacific Northwest.

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Looking at Winter in the Arboretum

PHOTOS BY JOY SPURR

son to enjoy Washington Park's 230 acres. Here are some of the scenes and plants you will see over the next few months. Get the Winter Garden brochure (includes plant list) at the Graham Visitors Center.

Beforehand, visit the Winter Garden on the Web, which offers a site plan and more photos: http://www.weber.u.washington.edu/~wpa/plants/winter.html

Photos

ABOVE:

Callicarpa japonica (beauty berry).

UPPER CENTER:

Rhododendron 'Cilpinense' blooms in March.
Behind it, Harry Lauder's walking-stick
(Corylus avellana 'Contorta'), loved for its
charmingly twisted branches, holds greenyellow catkins all winter.

LOWER CENTER:

The highly textural bark of *Prunus serrula* is striking in the winter landscape.

UPPER RIGHT:

Dramatic gray brambles of *Rubus biflorus* var. *quinqueflorus* are striking behind the luxuriant green *Carex morrowii* 'Variegata'.

LOWER RIGHT:

The form and early season of *Stachyurus* praecox fascinates visitors to the Winter Garden.



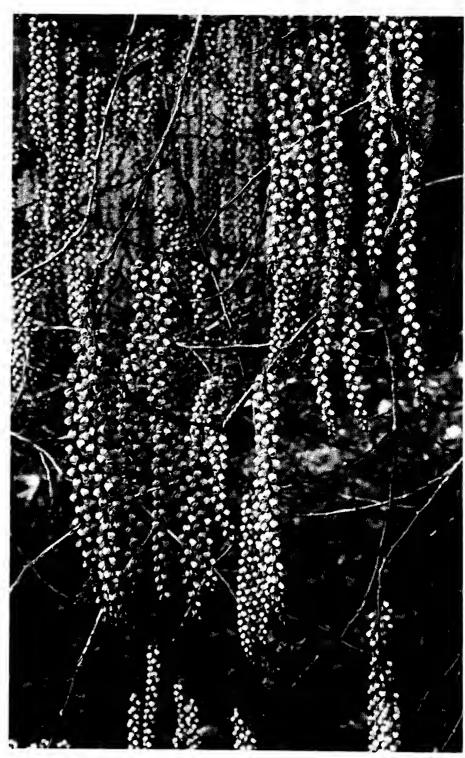


Washington Park Arboretum Bulletin









Volume 60:4

Find this glimpse of spring in the Gift Shop at Graham Visitors Center, Washington Park Arboretum...



New Spring at the Old Stone Gatehouse~ Stan Lennard, artist

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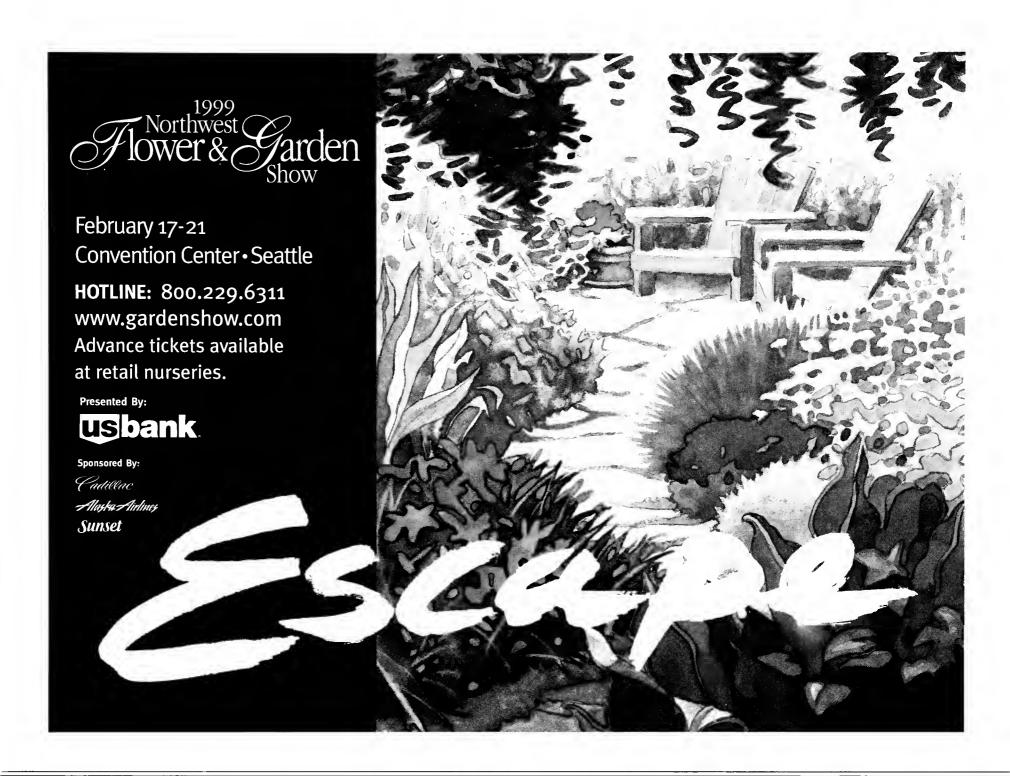
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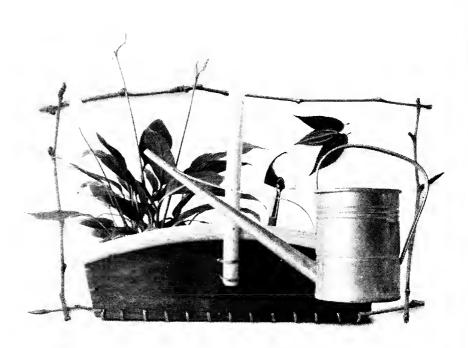
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e-mail: gvc@arboretumfoundation.org

Web: http://weber.u.washington.edu/~wpa/

An arboretum is a living museum of woody plants for research, education, conservation, and display.

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